



# SLOVENSKI STANDARD

## SIST EN 4604-010:2011

01-oktober-2011

Nadomešča:

SIST EN 4604-010:2009

---

**Aeronavtika - Kabli, električni, za prenos signala - 010. del: Kabli, koaksialni, lahki, 50 ohmov, 200 °C, tip KX (lahki WD) - Standard za izdelek**

Aerospace series - Cable, electrical, for signal transmission - Part 010: Cable, coaxial, light weight, 50 Ohms, 200 °C, type KX (light WD) - Product standard

Luft- und Raumfahrt - Elektrische Leitungen für Signalübertragungen - Teil 010: Koaxialkabel, Leichtbauweise, 50 Ohm, 200 °C, Typ KX (WD Leichtbauweise) - Produktnorm

Série aérospatiale - Câbles électriques pour transmission de signaux - Partie 010 : Câble, coaxial, allégé, 50 Ohms, 200 °C, Type KX (WD allégé) - Norme de produit

**Ta slovenski standard je istoveten z: EN 4604-010:2011**

### ICS:

49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems
--------	--	--

**SIST EN 4604-010:2011**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 4604-010:2011

<https://standards.iteh.ai/catalog/standards/sist/ff94d000-bb25-42be-9e18-65b9e56aef1/sist-en-4604-010-2011>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4604-010**

April 2011

ICS 49.060

Supersedes EN 4604-010:2009

English Version

**Aerospace series - Cable, electrical, for signal transmission -  
Part 010: Cable, coaxial, light weight, 50 Ohms, 200 °C, type KX  
(light WD) - Product standard**

Série aéronautique - Câbles électriques pour transmission  
de signaux - Partie 010 : Câble, coaxial, allégé, 50 Ohms,  
200 °C, Type KX (WD allégé) - Norme de produit

Luft- und Raumfahrt - Elektrische Leitungen für  
Signalübertragungen - Teil 010: Koaxialkabel,  
Leichtbauweise, 50 Ohm, 200 °C, Typ KX (WD  
Leichtbauweise) - Produktnorm

This European Standard was approved by CEN on 12 February 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>		Page
Foreword.....		3
1	Scope .....	4
2	Normative references .....	4
3	Terms and definitions .....	4
4	Required characteristics .....	4
5	Quality assurance .....	10
6	Designation .....	10
7	Identification and marking .....	11
8	Colours of components and jacket.....	11
9	Packaging, labelling and delivery lengths .....	11
10	Technical specification .....	11

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

[SIST EN 4604-010:2011](https://standards.iteh.ai/catalog/standards/sist/ff94d000-bb25-42be-9e18-65b9e56aef1/sist-en-4604-010-2011)

<https://standards.iteh.ai/catalog/standards/sist/ff94d000-bb25-42be-9e18-65b9e56aef1/sist-en-4604-010-2011>

## Foreword

This document (EN 4604-010:2011) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2011, and conflicting national standards shall be withdrawn at the latest by October 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 4604-010:2009.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

[SIST EN 4604-010:2011](https://standards.iteh.ai/catalog/standards/sist/f94d000-bb25-42be-9e18-65b9e56aef1/sist-en-4604-010-2011)

<https://standards.iteh.ai/catalog/standards/sist/f94d000-bb25-42be-9e18-65b9e56aef1/sist-en-4604-010-2011>

**EN 4604-010:2011 (E)****1 Scope**

This European Standard specifies the required characteristics of a light weight coaxial cable, 50  $\Omega$ , type KX for use in aircraft electrical systems at operating temperature between – 55 °C and 200 °C and specially for high frequency up to 6 GHz. Nevertheless, if needed, – 65 °C is also acceptable as shown by rapid change of temperature test.

**2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 3475-100 (all parts), *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 100: General*

EN 4604-001, *Aerospace series — Cable, electrical, for signal transmission — Part 001: Technical specification*

EN 4604-002, *Aerospace series — Cable, electrical, for signal transmission — Part 002: General*

TR 6058, *Aerospace series — Cable code and identification list* <sup>1)</sup>

ASTM-B298-07, *Standard specification for silver-coated soft or annealed copper wire* <sup>2)</sup>

ITeH STANDARD PREVIEW  
(standards.iteh.ai)

**3 Terms and definitions**

SIST EN 4604-010:2011

For the purposes of this document, the terms and definitions given in EN 3475-100 apply.

65b9e56aef1/sist-en-4604-010-2011

**4 Required characteristics****4.1 Material, constructions, dimension and mass****4.1.1 Material**

See Table 1.

---

1) Published as ASD-STAN Technical Report at the date of publication of this standard by Aerospace and Defence Industries Association of Europe-Standardization (ASD-STAN), ([www.asd-stan.org](http://www.asd-stan.org)).

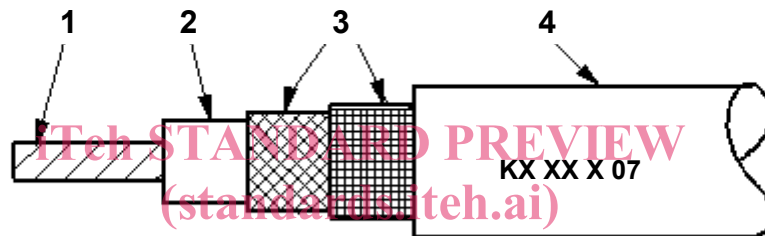
2) Published by: ASTM National (US) American Society for Testing and Materials <http://www.astm.org/>

Table 1 — Material

	Material	Finish	Colour
Conductor	Single-strands copper per ASTM-B-298-07	1 µm silver plated	—
Dielectric	Fluorocarbon	—	—
Screen (foil)	Tape, silver plated copper or silver alloy	—	—
Shield	Braid, copper per ASTM-B298-07	1 µm silver plated	—
Jacket	Fluorocarbon	—	Light green

#### 4.1.2 Construction, dimensions and mass

See Figure 1 and Table 2.



SIST EN 4604-010:2011

<https://standards.iteh.ai/catalog/standards/sist/f94d000-bb25-42be-9e18-65b9e56aef1/sist-en-4604-010-2011>

#### Key

- 1 Conductor
- 2 Dielectric
- 3 Screen + foil
- 4 Jacket

Figure 1 — Construction

Table 2 — Dimensions and mass

Diameter (mm)				Mass	
Conductor	Dielectric	Shield	Cable	g/m	
				nom.	max.
$1,4 \pm 0,02$	$4,2^{+0,1}_{-0,15}$	$4,8 \pm 0,2$	$5,4 \pm 0,15$	65	80

## EN 4604-010:2011 (E)

## 4.2 General characteristics

- Operating temperature: – 55 °C to 200 °C,
- Minimum bend radius:
  - in static use: 30 mm,
  - in dynamic use: 50 mm.
- Performances are guaranteed up to 6 GHz.

## 4.3 Electrical characteristics

- Characteristic impedance:  $Z_c = (50 \pm 2) \Omega$  at 200 MHz,
- Capacitance per unit length:  $C_p = 88$  pF/m max,
- Transfer impedance: see Table 4,
- Operating voltage: 1 000 V RMS max,
- Maximum power handling (at sea level): see Table 3,
- Attenuation versus frequency: see Table 3,
- Velocity of propagation  $\geq 225\,000$  km/s.

SIST EN 4604-010:2011  
 Table 3 — Maximum attenuation, power handling and return loss  
<https://standards.iteh.ai/catalog/standards/sist/19-4d000-bb25-42bc-9c18-65b19e56aef1/sist-en-4604-010-2011>

Frequency MHz	50	100	150	200	400	1 000	1 600	2 500	3 000	6 000
Attenuation dB/100 m	5,1	7,2	9,1	10,7	16,1	28,6	39,6	55,0	61,0	110
Power cw W	5 700	4 000	3 100	2 700	1 800	1 000	730	530	480	250
(VSWR) dB	1,1			1,15			1,2			1,35

Values of power have to be confirmed by measurement or calculation (EN 3475-813 test method to be written).

Table 1 — Frequency, transfer impedance

Frequency MHz	0 to 0,01	0,1	1	5	10	30	100
Transfer impedance $Z_t$ max. (m $\Omega$ /m)	4,2	4	1,3	0,6	1,0	2,3	5,5

## 4.4 Tests

According to Table 5.



Table 5 — Tests

EN 3475-	Designation of the test	Remarks
201	Visual examination	Applicable
202	Mass	Applicable See 4.1 and Table 2.
203	Dimensions	Applicable See 4.1 and Table 2.
301	Ohmic resistance per unit length	Applicable 11,53 $\Omega$ /km max.
302	Voltage proof test	Applicable Dielectric: Dry test: 2 500 VAC Jacket: Dry test: 1 750 VAC Dry impulse: 5 000 V Immersion test: 1 750 VAC
303	Insulation resistance	Applicable > 5 000 M $\Omega$ .km between shield and conductor
304	Surface resistance	Not applicable
305	Overload resistance	Not applicable
306	Continuity of conductors	Applicable
307	Corona extinction voltage	Applicable Extinction voltage = 1 500 V
401	Accelerated ageing	Not applicable
402	Shrinkage and delamination	Not applicable
403	Delamination and blocking	Not applicable
404	Thermal shock	Not applicable
405	Bending at ambient temperature	Not applicable
406	Cold bend test	Not applicable
407	Flammability	Applicable Load = 20 N Extinction time < 3 s
408	Fire resistance	Not applicable
409	Air-excluded ageing	Not applicable
410	Thermal endurance	Not applicable
411	Resistance to fluids	Applicable
412	Humidity resistance	Not applicable
413	Wrap back test	Not applicable
414	Differential scanning calorimeter (DSC Test)	Not applicable

continued